

What is claimed is:

1. A vehicle brake system comprising:
  - a brake actuator;
  - a brake controller operative to control said brake actuator;
  - at least one position sensor which senses a current position of at least one moveable brake component and provides a current position signal indicative of the current position of the at least one moveable brake component to said brake controller; and

wherein said brake controller is operative to cause actuation of said brake actuator based at least in part upon a position indicative command received by said brake controller indicative of a commanded position of the at least one moveable brake component and at least in part based upon the current position signal.
2. The system of Claim 1 wherein said brake actuator comprises a self-energizing brake actuator.
3. The system of Claim 1 wherein said brake actuator comprises an electromechanical brake actuator, actuation of which is at least partially achieved employing an electric motor.
4. The system of Claim 3 wherein the at least one moveable brake component comprises an output shaft of the electric motor.

5. The system of Claim 4 wherein the output shaft is rotatably moveable, wherein the current position signal is indicative of the current rotational position of the output shaft, and wherein the position indicative command is indicative of a commanded rotational position of the output shaft.
6. The system of Claim 1 wherein the at least one moveable brake component comprises at least one of a brake pad and a brake pad carrier.
7. The system of Claim 6 wherein the at least one of a brake pad and a brake pad carrier is axially moveable, wherein the current position signal is indicative of the current axial position of the at least one of a brake pad and a brake pad carrier, and wherein the position indicative command is indicative of a commanded axial position of the at least one of a brake pad and a brake pad carrier.
8. The system of Claim 1 further comprising a command converter for converting a primary command into the position indicative command.
9. The system of Claim 8 wherein the primary command comprises at least one of a commanded brake torque, a commanded friction force and a commanded clamping force.

10. The system of Claim 8 wherein the command converter employs at least one of an effective disc brake radius parameter, a pad/disc coefficient of friction parameter, a brake elasticity parameter, and a slack position parameter in order to convert the primary command into the position indicative command.

11. The system of Claim 8 further comprising a parameter estimator for estimating, based upon sensor input, at least one parameter used by the command converter to convert the primary command into the position indicative command, and for supplying the estimated parameter to the command converter.

12. The system of Claim 11 wherein the at least one parameter comprises at least one of an effective disc brake radius parameter, a pad/disc coefficient of friction parameter, a brake elasticity parameter, and a slack position parameter.

13. The system of Claim 11 wherein the sensor input is indicative of at least one of the following: a clamping force, a friction force, a brake torque, the current position of the at least one moveable brake component, a velocity of a brake disc, an acceleration of a brake disc, a motor current, a motor voltage and a motor torque.

14. A vehicle brake system comprising:  
an electromechanical self-energizing brake actuator, actuation of which is at least partially achieved employing an electric motor;

a brake controller operative to control said brake actuator;

at least one position sensor which senses a current position of at least one moveable brake component and provides a current position signal indicative of the current position of the at least one moveable brake component to said brake controller;

a command converter for converting a primary command into a position indicative command indicative of a commanded position of the at least one moveable brake component and providing the position indicative command to said brake controller;

a parameter estimator for estimating, based upon sensor input, at least one parameter used by said command converter to convert the primary command into the position indicative command, and for supplying the estimated parameter to said command converter; and

wherein said brake controller is operative to cause actuation of said brake actuator based at least in part upon the position indicative command received by said brake controller and at least in part based upon the current position signal.

15. The system of Claim 14 wherein the at least one moveable brake component comprises an output shaft of the electric motor.

16. The system of Claim 15 wherein the output shaft is rotatably moveable, wherein the current position signal is indicative of the current rotational position of

the output shaft, and wherein the position indicative command is indicative of a commanded rotational position of the output shaft.

17. The system of Claim 14 wherein the at least one moveable brake component comprises at least one of a brake pad and a brake pad carrier.

18. The system of Claim 17 wherein the at least one of a brake pad and a brake pad carrier is axially moveable, wherein the current position signal is indicative of the current axial position of the at least of a brake pad and a brake pad carrier, and wherein the position indicative command is indicative of a commanded axial position of the at least of a brake pad and a brake pad carrier.

19. The system of Claim 14 wherein the primary command comprises at least one of a commanded brake torque, a commanded friction force and a commanded clamping force.

20. The system of Claim 19 wherein said command converter employs at least one of an effective disc brake radius parameter, a pad/disc coefficient of friction parameter, a brake elasticity parameter, and a slack position parameter in order to convert the primary command into the position indicative command.

21. The system of Claim 14 wherein the at least one parameter comprises at least one of an effective disc brake radius parameter, a pad/disc coefficient of friction parameter, a brake elasticity parameter, and a slack position parameter.
22. The system of Claim 21 wherein the sensor input is indicative of at least one of the following: a clamping force, a friction force, a brake torque, the current position of the at least one moveable brake component, a velocity of a brake disc, an acceleration of a brake disc, a current of the motor, a voltage of the motor and a torque of the motor.
23. A method of controlling a vehicle brake, said method comprising the steps of:
- receiving a current position signal indicative of a current position of at least one moveable brake component;
  - receiving a position indicative command indicative of a commanded position of the at least one moveable brake component; and
  - causing actuation of a brake actuator based at least in part upon the position indicative command and at least in part based upon the current position signal.
24. The method of Claim 23 wherein the brake actuator comprises a self-energizing brake actuator.

25. The method of Claim 23 wherein the brake actuator comprises an electromechanical brake actuator, actuation of which is at least partially achieved employing an electric motor.

26. The method of Claim 25 wherein the at least one moveable brake component comprises an output shaft of the electric motor.

27. The method of Claim 26 wherein the output shaft is rotatably moveable, wherein the current position signal is indicative of the current rotational position of the output shaft, and wherein the position indicative command is indicative of a commanded rotational position of the output shaft.

28. The method of Claim 23 wherein the at least one moveable brake component comprises at least one of a brake pad and a brake pad carrier.

29. The method of Claim 28 wherein the at least one of a brake pad and a brake pad carrier is axially moveable, wherein the current position signal is indicative of the current axial position of the at least of a brake pad and a brake pad carrier, and wherein the position indicative command is indicative of a commanded axial position of the at least of a brake pad and a brake pad carrier.

30. The method of Claim 23 further comprising the step of converting a primary command into the position indicative command.

31. The method of Claim 30 wherein the primary command comprises at least one of a commanded brake torque, a commanded friction force and a commanded clamping force.

32. The method of Claim 30 wherein said converting step employs at least one of an effective disc brake radius parameter, a pad/disc coefficient of friction parameter, a brake elasticity parameter, and a slack position parameter in order to convert the primary command into the position indicative command.

33. The method of Claim 30 further comprising the step of estimating, based upon sensor input, at least one parameter used during said converting step to convert the primary command into the position indicative command.

34. The method of Claim 33 wherein the at least one parameter comprises at least one of an effective disc brake radius parameter, a pad/disc coefficient of friction parameter, a brake elasticity parameter, and a slack position parameter.

35. The method of Claim 33 wherein the sensor input is indicative of at least one of the following: a clamping force, a friction force, a brake torque, the current position of the at least one moveable brake component, a velocity of a brake disc, an acceleration of a brake disc, a motor current, a motor voltage and a motor torque.



36. A method of controlling a vehicle brake, said method comprising the steps of:
- receiving a primary command;
  - converting the primary command into a position indicative command indicative of a commanded position of at least one moveable brake component;
  - estimating, based upon sensor input, at least one parameter used during said converting step to convert the primary command into the position indicative command;
  - receiving a current position signal indicative of a current position of the at least one moveable brake component; and
  - causing actuation of a self-energizing brake actuator based at least in part upon the position indicative command and at least in part based upon the current position signal.
37. The method of Claim 36 wherein the brake actuator comprises an electromechanical brake actuator, actuation of which is at least partially achieved employing an electric motor.
38. The method of Claim 37 wherein the at least one moveable brake component comprises an output shaft of the electric motor.
39. The method of Claim 38 wherein the output shaft is rotatably moveable, wherein the current position signal is indicative of the current rotational position of

the output shaft, and wherein the position indicative command is indicative of a commanded rotational position of the output shaft.

40. The method of Claim 36 wherein the at least one moveable brake component comprises at least one of a brake pad and a brake pad carrier.

41. The method of Claim 40 wherein the at least one of a brake pad and a brake pad carrier is axially moveable, wherein the current position signal is indicative of the current axial position of the at least of a brake pad and a brake pad carrier, and wherein the position indicative command is indicative of a commanded axial position of the at least of a brake pad and a brake pad carrier.

42. The method of Claim 36 wherein the primary command comprises at least one of a commanded brake torque, a commanded friction force and a commanded clamping force.

43. The method of Claim 36 wherein said converting step employs at least one of an effective disc brake radius parameter, a pad/disc coefficient of friction parameter, a brake elasticity parameter, and a slack position parameter in order to convert the primary command into the position indicative command.

44. The method of Claim 36 wherein the at least one parameter comprises at least one of an effective disc brake radius parameter, a pad/disc coefficient of friction parameter, a brake elasticity parameter, and a slack position parameter.

45. The method of Claim 36 wherein the sensor input is indicative of at least one of the following: a clamping force, a friction force, a brake torque, the current position of the at least one moveable brake component, a velocity of a brake disc, an acceleration of a brake disc, a motor current, a motor voltage and a motor torque.